

WHAT IS CLAIMED IS:

1. A method for generating edge continuity pixel data, comprising:
identifying a pixel as an edge pixel based on a maximum luminance value and a minimum luminance value of a first neighborhood of the pixel; and
setting a polarity value of the edge pixel based on a dot product of the maximum luminance value and associated chroma values, and the minimum luminance value and associated chroma values.
2. The method of claim 1, further comprising:
reclassifying the polarity value of the edge pixel if at least one pixel in a second neighborhood of the edge pixel does not have a same polarity value.
3. The method of claim 1, further comprising:
reclassifying a non-edge pixel as an edge pixel with a polarity value if all pixels in a second neighborhood of the non-edge pixel have polarity values.
4. The method of claim 1, further comprising:
assigning the maximum luminance value and associated chroma values of the edge pixel as values of a corresponding pixel in an enhanced image data if the edge pixel has a first polarity value;
assigning the minimum luminance value and associated chroma values of the edge pixel as values of the corresponding pixel in the enhanced image data if the edge pixel has a second polarity value; and
assigning blurred color image values of a non-edge pixel as values of the corresponding pixel in the enhanced image data for the non-edge pixel.
5. The method of claim 1, further comprising:
linearizing a sequence of consecutive maximum luminance values and minimum luminance values if the sequence of consecutive maximum luminance values and minimum luminance values are non-linear prior to performing the dot product.

6. An apparatus to generate edge continuity pixel data, comprising:
 - a minimum-maximum value generator that outputs a maximum luminance value and associated chroma values, and a minimum luminance value and associated chroma values based on the maximum luminance value and the minimum luminance value of a first neighborhood of a pixel; and
 - a dot product multiplier that generates a polarity value of the pixel based on a dot product of the maximum luminance value and associated chroma values, and the minimum luminance value and associated chroma values.
7. The apparatus of claim 6, further comprising:
 - an edge detector that detects that the pixel is an edge pixel based on the maximum luminance value and the minimum luminance value generated by the minimum-maximum generator.
8. The apparatus of claim 7, further comprising:
 - a classifier that classifies the edge pixel based the polarity value generated by the dot product multiplier for the edge pixel.
9. The apparatus of claim 8, further comprising:
 - a reclassifier that reclassifies a classified pixel if at least one pixel in a second neighborhood of the pixel does not have a same classification.
10. The apparatus of claim 7, further comprising:
 - an edge enhancer that assigns:
 - the maximum luminance value and associated chroma values of the edge pixel as values of the corresponding pixel in the enhanced image data if the edge pixel has a first polarity value;
 - the minimum luminance value and associated chroma values of the edge pixel as values of a corresponding pixel in an enhanced image data if the edge pixel has a second polarity value; and

blurred color image values of a non-edge pixel as values of the corresponding pixel in the enhanced image data for the non-edge pixel.

11. The apparatus of claim 6, further comprising:
a linearizer that linearizes a sequence of consecutive maximum luminance values and the minimum luminance values if the sequence of consecutive maximum luminance values and the minimum luminance value are non-linear prior to input to the dot product multiplier.
12. A xerographic marking device incorporating the apparatus of claim 6.
13. A marking device incorporating the apparatus of claim 6.
14. A digital photocopier incorporating the apparatus of claim 6.
15. An apparatus to generate edge continuity pixel data, comprising:
means for identifying a pixel as an edge pixel based on a maximum luminance value and a minimum luminance value of a first neighborhood of the pixel; and
means for setting a polarity value of the edge pixel based on a dot product of the maximum luminance value and associated chroma values, and the minimum luminance value and associated chroma values.
16. The apparatus of claim 15, further comprising:
means for reclassifying the polarity value of the edge pixel if at least one pixel in a second neighborhood of the edge pixel does not have a same polarity value; and
means for reclassifying a non-edge pixel as an edge pixel with a polarity value if all pixels in a second neighborhood of the non-edge pixel have polarity values.
17. The apparatus of claim 15, further comprising:

means for assigning the maximum luminance value and associated chroma values of the edge pixel as values of a corresponding pixel in an enhanced image data if the edge pixel has a first polarity value;

means for assigning the minimum luminance value and associated chroma values of the edge pixel as values of the corresponding pixel in the enhanced image data if the edge pixel has a second polarity value; and

means for assigning the blurred color image data of a non-edge pixel as values of the corresponding pixel in the enhanced image data for the non-edge pixel.

18. A storage medium storing a set of program instructions executable on a data processing device, the set of program instructions comprising:

instructions for identifying a pixel as an edge pixel based on a maximum luminance value and a minimum luminance value of a first neighborhood of the pixel; and

instructions for setting a polarity value of the edge pixel based on a dot product of the maximum luminance value and associated chroma values, and the minimum luminance value and associated chroma values.

19. The program of claim 18, further comprising:

instructions for reclassifying the polarity of the edge pixel if at least one pixel in a second neighborhood of the edge pixel does not have a same polarity value; and

instructions for reclassifying a non-edge pixel as an edge pixel with a polarity value if all pixels in the second neighborhood of the non-edge pixel have polarity values.

20. The program of claim 18, further comprising:

instructions for assigning the maximum luminance value and associated chroma values as values of a corresponding pixel in an enhanced image data if the edge pixel has a first polarity value;

instructions for assigning the minimum luminance value and associated chroma values as values of the corresponding pixel in the enhanced image data if the edge pixel has a second polarity value; and

instructions for assigning the blurred color image data of a non-edge pixel as values of the corresponding pixel in the enhanced image data for the non-edge pixel.